



**STATE OF TENNESSEE  
DEPARTMENT OF HEALTH  
ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL  
Lab Services - Jackson Regional Lab  
Jackson, TN 38301  
731-426-0686

TDH: Lab Services KRL  
Lab Services - Knoxville Regional Lab  
Knoxville, TN 37920  
865-549-5201

TDH: Lab Services NCL  
Lab Services - Nashville Central Lab  
Nashville, TN 37243  
615-262-6300

**Sent To:** Geoff Klein  
TDEC-DWS  
200 East Race St  
Knoxville, TN 37763

**Lab ID:** N00004820  
Nashville Central Laboratory

**Sampling Agency:** TDEC: Division of Water Supply

**Billing Code:** 327.39-12

This is to certify that the following results were determined using  
good laboratory practices and in accordance with federal or state  
approved methodologies.

  
Analytical Supervisor

Lab-Sample Number: N00004820001  
Project Name:  
Sample Description: KINGSTON WTP  
Sampler Project Name: RAW  
Project Site No.:  
Station No.:  
Date/Time Collected: 07/27/2009 08:35  
Sampler's Name: GEOFF KLEIN  
County: ROANE - 73  
Sample Matrix: Water  
EFO: Knoxville  
Sampling Agency: TDEC-DWS  
Billing Code: 327.39-12  
Send Report To: TDEC-DWS  
Agency Invoiced: TDEC-DWS  
Priority Date:  
Date/Time Received: 07/27/2009 12:00  
Received By: P Singh

**Field Determinations**

pH:  
Chlorine, residual:  
Conductivity:  
Temperature:  
Dissolved Oxygen:  
Other:  
Flow: CFS

TEST: Alkalinity, Total		METHOD: EPA 310.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	62	mg/L	3.8	10	M Chen	7/28/2009

TEST: Hardness, Calcium		METHOD: SM 3500-Ca D				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	50	mg/L	0.7	1	M Chen	7/28/2009

J - Estimated value between MDL and MQL  
MDL - Method Detection Limit  
MQL - Method Quantitation Limit  
U - Undetected

Lab-Sample Number: N00004820002  
Project Name:  
Sample Description: KINGSTON WTP  
Sampler Project Name: FINISH  
Project Site No.:  
Station No.:  
Date/Time Collected: 07/27/2009 08:40  
Sampler's Name: GEOFF KLEIN  
County: ROANE - 73  
Sample Matrix: Water  
EFO: Knoxville  
Sampling Agency: TDEC-DWS  
Billing Code: 327.39-12  
Send Report To: TDEC-DWS  
Agency Invoiced: TDEC-DWS  
Priority Date:  
Date/Time Received: 07/27/2009 12:00  
Received By: P Singh

**Field Determinations**

pH:  
Chlorine, residual:  
Conductivity:  
Temperature:  
Dissolved Oxygen:  
Other:  
Flow: CFS

TEST: Alkalinity, Total		METHOD: EPA 310.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	59	mg/L	3.8	10	M Chen	7/28/2009

TEST: Hardness, Calcium		METHOD: SM 3500-Ca D				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	51	mg/L	0.7	1	M Chen	7/28/2009

J - Estimated value between MDL and MQL  
MDL - Method Detection Limit  
MQL - Method Quantitation Limit  
U - Undetected

Lab-Sample Number: N00004820003  
Project Name:  
Sample Description: ROCKWOOD WTP  
Sampler Project Name: RAW  
Project Site No.:  
Station No.:  
Date/Time Collected: 07/27/2009 10:10  
Sampler's Name: GEOFF KLEIN  
County: ROANE - 73  
Sample Matrix: Water  
EFO: Knoxville  
Sampling Agency: TDEC-DWS  
Billing Code: 327.39-12  
Send Report To: TDEC-DWS  
Agency Invoiced: TDEC-DWS  
Priority Date:  
Date/Time Received: 07/27/2009 12:00  
Received By: P Singh

**Field Determinations**

pH:  
Chlorine, residual:  
Conductivity:  
Temperature:  
Dissolved Oxygen:  
Other:  
Flow: CFS

TEST: Alkalinity, Total		METHOD: EPA 310.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	71	mg/L	3.8	10	M Chen	7/28/2009

TEST: Hardness, Calcium		METHOD: SM 3500-Ca D				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	56	mg/L	0.7	1	M Chen	7/28/2009

J - Estimated value between MDL and MQL  
MDL - Method Detection Limit  
MQL - Method Quantitation Limit  
U - Undetected

Lab-Sample Number: N00004820004  
Project Name:  
Sample Description: ROCKWOOD WTP  
Sampler Project Name: FINISH  
Project Site No.:  
Station No.:  
Date/Time Collected: 07/27/2009 10:15  
Sampler's Name: GEOFF KLEIN  
County: ROANE - 73  
Sample Matrix: Water  
EFO: Knoxville  
Sampling Agency: TDEC-DWS  
Billing Code: 327.39-12  
Send Report To: TDEC-DWS  
Agency Invoiced: TDEC-DWS  
Priority Date:  
Date/Time Received: 07/27/2009 12:00  
Received By: P Singh

**Field Determinations**

pH:  
Chlorine, residual:  
Conductivity:  
Temperature:  
Dissolved Oxygen:  
Other:  
Flow: CFS

TEST: Alkalinity, Total		METHOD: EPA 310.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	60	mg/L	3.8	10	M Chen	7/28/2009

TEST: Hardness, Calcium		METHOD: SM 3500-Ca D				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	55	mg/L	0.7	1	M Chen	7/28/2009

J - Estimated value between MDL and MQL  
MDL - Method Detection Limit  
MQL - Method Quantitation Limit  
U - Undetected



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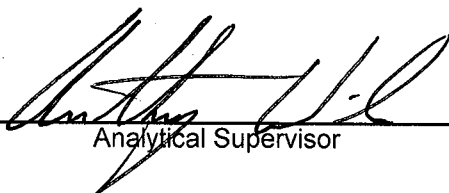
**Sent To:** Geoff Klein  
TDEC-DWS  
200 East Race St  
Knoxville, TN 37763

**Lab ID:** N00004820  
Nashville Central Laboratory

**Sampling Agency:** TDEC: Division of Water Supply

**Billing Code:** 327.39-12

This is to certify that the following results were determined using  
good laboratory practices and in accordance with federal or state  
approved methodologies.

  
Analytical Supervisor

**Lab-Sample Number:** N00004820001  
**Project Name:**  
**Sample Description:** KINGSTON WTP  
**Sampler Project Name:** RAW  
**Project Site No.:**  
**Station No.:**  
**Date/Time Collected:** 07/27/2009 08:35  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
**Date/Time Received:** 07/27/2009 12:00  
**Received By:** P Singh

**Field Determinations**

**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Digestion Metals			METHOD: EPA 200.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	07/28/2009				W Frye	7/28/2009

TEST: ICP-MS			METHOD: EPA 200.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	µg/L	0.93	5	M Pattanayek	7/28/2009
Barium	19	µg/L	2.5	5	M Pattanayek	7/28/2009
Beryllium	U	µg/L	0.11	1	M Pattanayek	7/28/2009
Cadmium	U	µg/L	0.41	1	M Pattanayek	7/28/2009
Chromium	U	µg/L	2.0	5	M Pattanayek	7/28/2009
Cobalt	0.13J	µg/L	0.04	1	M Pattanayek	7/28/2009
Lead	0.53J	µg/L	0.10	1	M Pattanayek	7/28/2009
Manganese	21	µg/L	0.42	1	M Pattanayek	7/28/2009
Selenium	U	µg/L	1.3	5	M Pattanayek	7/28/2009
Thallium	0.13J	µg/L	0.03	1	M Pattanayek	7/28/2009
Vanadium	U	µg/L	3.4	5	M Pattanayek	7/28/2009

TEST: Mercury			METHOD: EPA 245.1			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.029	0.2	A Bass	7/28/2009

J - Estimated value between MDL and MQL  
 MDL - Method Detection Limit  
 MQL - Method Quantitation Limit  
 U - Undetected

**Lab-Sample Number:** N00004820002  
**Project Name:**  
**Sample Description:** KINGSTON WTP  
**Sampler Project Name:** FINISH  
**Project Site No.:**  
**Station No.:**  
**Date/Time Collected:** 07/27/2009 08:40  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
**Date/Time Received:** 07/27/2009 12:00  
**Received By:** P Singh

**Field Determinations**

**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Digestion Metals		METHOD: EPA 200.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	07/28/2009				W Frye	7/28/2009

TEST: ICP-MS		METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	µg/L	0.93	5	M Pattanayek	7/28/2009
Barium	19	µg/L	2.5	5	M Pattanayek	7/28/2009
Beryllium	U	µg/L	0.11	1	M Pattanayek	7/28/2009
Cadmium	U	µg/L	0.41	1	M Pattanayek	7/28/2009
Chromium	U	µg/L	2.0	5	M Pattanayek	7/28/2009
Cobalt	0.13J	µg/L	0.04	1	M Pattanayek	7/28/2009
Lead	0.13J	µg/L	0.10	1	M Pattanayek	7/28/2009
Manganese	U	µg/L	0.42	1	M Pattanayek	7/28/2009
Selenium	U	µg/L	1.3	5	M Pattanayek	7/28/2009
Thallium	0.10J	µg/L	0.03	1	M Pattanayek	7/28/2009
Vanadium	U	µg/L	3.4	5	M Pattanayek	7/28/2009

TEST: Mercury		METHOD: EPA 245.1				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.029	0.2	A Bass	7/28/2009

J - Estimated value between MDL and MQL  
 MDL - Method Detection Limit  
 MQL - Method Quantitation Limit  
 U - Undetected



**Lab-Sample Number:** N00004820003  
**Project Name:**  
**Sample Description:** ROCKWOOD WTP  
**Sampler Project Name:** RAW  
**Project Site No.:**  
**Station No.:**  
**Date/Time Collected:** 07/27/2009 10:10  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
**Date/Time Received:** 07/27/2009 12:00  
**Received By:** P Singh

**Field Determinations**

**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Digestion Metals		METHOD: EPA 200.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	07/28/2009				W Frye	7/28/2009

TEST: ICP-MS		METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	µg/L	0.93	5	M Pattanayek	7/28/2009
Barium	21	µg/L	2.5	5	M Pattanayek	7/28/2009
Beryllium	U	µg/L	0.11	1	M Pattanayek	7/28/2009
Cadmium	U	µg/L	0.41	1	M Pattanayek	7/28/2009
Chromium	U	µg/L	2.0	5	M Pattanayek	7/28/2009
Cobalt	0.13J	µg/L	0.04	1	M Pattanayek	7/28/2009
Lead	0.33J	µg/L	0.10	1	M Pattanayek	7/28/2009
Manganese	8.1	µg/L	0.42	1	M Pattanayek	7/28/2009
Selenium	U	µg/L	1.3	5	M Pattanayek	7/28/2009
Thallium	0.35J	µg/L	0.03	1	M Pattanayek	7/28/2009
Vanadium	U	µg/L	3.4	5	M Pattanayek	7/28/2009

TEST: Mercury		METHOD: EPA 245.1				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.029	0.2	A Bass	7/28/2009

J - Estimated value between MDL and MQL  
 MDL - Method Detection Limit  
 MQL - Method Quantitation Limit  
 U - Undetected

**Lab-Sample Number:** N00004820004  
**Project Name:**  
**Sample Description:** ROCKWOOD WTP  
**Sampler Project Name:** FINISH  
**Project Site No.:**  
**Station No.:**  
**Date/Time Collected:** 07/27/2009 10:15  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
**Date/Time Received:** 07/27/2009 12:00  
**Received By:** P Singh

**Field Determinations**

**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Digestion Metals		METHOD: EPA 200.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	07/28/2009				W Frye	7/28/2009

TEST: ICP-MS		METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	µg/L	0.93	5	M Pattanayek	7/28/2009
Barium	25	µg/L	2.5	5	M Pattanayek	7/28/2009
Beryllium	U	µg/L	0.11	1	M Pattanayek	7/28/2009
Cadmium	U	µg/L	0.41	1	M Pattanayek	7/28/2009
Chromium	U	µg/L	2.0	5	M Pattanayek	7/28/2009
Cobalt	0.17J	µg/L	0.04	1	M Pattanayek	7/28/2009
Lead	U	µg/L	0.10	1	M Pattanayek	7/28/2009
Manganese	2.1	µg/L	0.42	1	M Pattanayek	7/28/2009
Selenium	U	µg/L	1.3	5	M Pattanayek	7/28/2009
Thallium	0.27J	µg/L	0.03	1	M Pattanayek	7/28/2009
Vanadium	U	µg/L	3.4	5	M Pattanayek	7/28/2009

TEST: Mercury		METHOD: EPA 245.1				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.029	0.2	A Bass	7/28/2009

J - Estimated value between MDL and MQL  
 MDL - Method Detection Limit  
 MQL - Method Quantitation Limit  
 U - Undetected